

REMARKS

This RCE and Amendment responds to the Office Action mailed on July 18, 2008.

Claims 1, 3, 7, 8, 10, 11, 13 - 15, 17, 18, 20, 24 and 25 are amended; claims 2, 6, 12, 16, 19 and 23 are cancelled; as a result, claims 1, 3, 4, 7 - 11, 13 - 15, 17, 18, 20 - 22 and 24 - 26 are now pending in this application.

Claim Objections

The Official Action, dated July 18, 2008, indicates at paragraph 2 on page 2, that Claims 4 and 5 are objected to. Applicants respectfully submit that these objections were addressed in the response to the Official Action dated January 08, 2008, filed April 08, 2008. In the April 08, 2008, response, claim 5 was cancelled and claim 4 was amended to read: "...wherein said TCP-A driver performing one or more operations...." The Official Action, dated July 18, 2008, indicates at paragraph 1 on page 2 that claim 5 has been cancelled and further indicates at paragraph 32 on page 16 that "[t]he respective objections have been withdrawn in light of the instant amendments." Applicants respectfully request clarification.

35 USC §103 Rejection of the Claims

Claims 1-2, 6-12, 14-16, 18-19 and 23-26 were rejected under 35 USC § 103(a) as being unpatentable over Hendel et al. (U.S. Patent Application Publication No. 2004/0013117 A1) in view of Pettey (U.S. Patent Application Publication No. 2003/0014544 A1). Applicants traverse these rejections.

Claims 4-5 and 21-22 were rejected under 35 USC § 103(a) as being unpatentable over Hendel in view of Pettey and further in view of Cheriton et al. (U.S. Patent No. 6,675,200 B1). Applicants traverse these rejections.

Claims 3, 13, 17 and 20 were rejected under 35 USC § 103(a) as being unpatentable over Hendel in view of Pettey and further in view of Seidl et al. (U.S. Patent Application Publication No. 2003/0217231 A1). Applicants traverse these rejections.

Claims 1, 10, 14 and 18 are independent claims.

Claim 1 has been amended to recite:

1. A method comprising:
receiving an indication on a network component that one or more packets have been received from a network;
splitting each of the one or more packets into a header and a payload and posting each of the header and payload to one or more post buffers, using the network component;
notifying a TCP-A (transport control protocol – accelerated) driver, by the network component, that the one or more packets have arrived;
performing TCP stack processing by parsing the header in at least one of the one or more packets to determine the protocol context associated with a current connection, and performing TCP protocol compliance for the at least one of the one or more packets, using the TCP-A driver; and
performing one or more operations, using the TCP-A driver, that result in a data movement module **retrieving one or more payloads of the at least one of the one or more packets from an associated post buffer** and placing the one or more corresponding payloads into a read buffer wherein the data movement module comprises a DMA (direct memory access) engine.

Claim 10 has been amended to recite:

10. An apparatus comprising:
a network component configured to:
receive an indication that one or more packets have been received from a network;
split each of the one or more packets into a header and a payload and post each of the header and payload to one or more post buffers; and
notify a TCP-A (transport control protocol – accelerated) driver that the one or more packets have arrived; and

the TCP-A driver configured to:

perform packet processing by parsing the header in at least one of the one or more packets to determine the protocol context associated with a current connection, and perform TCP protocol compliance for the at least one of the one or more packets; and
perform one or more operations that result in a data movement module **retrieving one or more payloads of the at least one of the one or more packets from an associated post buffer** and placing the one or more corresponding payloads into a read buffer.

Claims 14 and 18 have been similarly amended.

Claim 1 has been amended to include the teachings of claims 2 and 6 and to clarify the method claimed. Claim 10 has been amended to include the teachings of claim 12 and to clarify the apparatus claimed. Claim 14 has been amended to include the teachings of claim 16 and to clarify the system claimed. Claim 18 has been amended to include the teachings of claim 19 and 23 and to clarify the machine readable medium claimed. No new matter is believed to have been added by these amendments.

Regarding claim 1, in the Official Action, the Examiner concedes that Hendel, the primary reference, fails to disclose the “TCP-A (transport control protocol – accelerated) driver.” Examiner points to Pettey (Page 10, [0089], lines 1-9 of the Specification: “a connection acceleration driver”) as providing the missing teaching. Applicants respectfully assert that combining Pettey and Hendel would not have been obvious because such a combination would change a principle of operation of Hendel. *See, e.g., MPEP 2143.01 (iv).*

It is Applicants’ understanding that Hendel teaches that at least some protocol processing is performed by a host processor. *See, e.g., Hendel, page 2, paragraph [0025], lines 8-10.* Hendel further teaches that a packet header portion is forwarded to a host for protocol processing, thus, the host processor maintains the state of a protocol. *See, e.g., Hendel, page 3, paragraph [0035], lines 11-13.*

It is Applicants’ understanding that Pettey teaches a connection acceleration driver that interfaces to a TCP-aware target adapter. The connection acceleration driver issues connection acceleration requests to the TCP-aware target adapter. If the acceleration request is granted, the TCP-aware target adapter performs all the TCP/IP/MAC processing and initiates remote DMA of data to/from buffers. In this way, all of the TCP/IP/MAC processing is offloaded from a host server. *See, e.g., Pettey, page 10, paragraph [0093].*

Accordingly, combining the connection acceleration driver of Pettey, where all TCP/IP/MAC processing is offloaded from a host server, would change the principle of operation of Hendel where at least some protocol processing is performed by a host processor.

Further, without conceding that such combination is proper, even if Pettey and Hendel were combined, the combination would not render obvious the method claimed in amended

claim 1 of the pending application because such combination would not teach or suggest all the claimed teachings.

In the Official Action at page 3, paragraph 6; page 7 paragraph 10; and page 16, paragraph 33, it is asserted that Hendel discloses all the teachings of claims 1 and 2, with the exception of the TCP-A driver. The Official Action further asserts that the TCP-A driver is disclosed by Pettey. Applicant respectfully submits that Hendel fails to disclose “the network component ... posting each of the header and payload to one or more post buffers” as claimed in amended claim 1.

Rather, as Applicant understands, the interface in Hendel parses a received packet and processes the header(s) to determine the packet's destination. *See, e.g., Hendel, page 5, paragraph [0054] and paragraph [0055], lines 1-2.* The interface performs a number of processing steps related to storing a received packet's payload in a host buffer, without intermediate buffering. Details of this processing are further described in Hendel. *See, e.g., page 4, paragraph [0052] through page 5, paragraph [0069] and FIG. 3 of Hendel.* If a host buffer is successfully identified and the packet payload is successfully stored in the identified host buffer(s), the header portion of the packet is sent to a host processor as a message. *See, e.g., Hendel, page 5, paragraph [0068].* If the process is not successful, i.e., the interface could not map or translate the packet to an available host buffer, the entire packet is sent to the host processor as a message. *See, e.g., Hendel, page 5, paragraph [0070], lines 1-7.*

Accordingly, Applicants respectfully assert that Hendel teaches a fundamentally different method than the method claimed in amended claim 1. Hendel does not teach posting a header to a post buffer as claimed in amended claim 1. Further, Hendel does not teach posting a payload to a post buffer nor retrieving a payload from the post buffer. As Applicants understand, Hendel avoids using post buffers and generally reassembles packet payloads directly into host memory buffers based on packet processing by the communication interface.

In the claimed method, stack processing tasks for received packets are distributed between a network component, a TCP-A driver and a data movement module. The network component splits each received packet into a header and payload, posts the header and payload to one or more post buffers and notifies the TCP-A driver that the packet(s) have arrived. The TCP-A driver performs TCP stack processing on the header and performs one or more operations

that result in the data movement module retrieving one or more payloads from an associated post buffer and placing the one or more payloads into a read buffer. In this manner, the processing load related to packet processing is shared between the network component, the TCP-A driver and the data movement module. The claimed method is therefore fundamentally different from the method disclosed in Hendel, where the communication interface appears to do most of the processing.

Petty does not provide the missing teaching and is not cited as such. As discussed above, the connection acceleration driver issues connection acceleration requests to the TCP-aware target adapter. If the acceleration request is granted, the TCP-aware target adapter performs all the TCP/IP/MAC processing and initiates remote DMA of data to/from buffers. In this way, all of the TCP/IP/MAC processing is offloaded from a host server. *See, e.g., Petty, page 10, paragraph [0093]*. Accordingly, Petty also fails to disclose “the network component ... posting each of the header and payload to one or more post buffers” as claimed in amended claim 1.

At least for these reasons, the invention claimed in amended claim 1 is non-obvious over Hendel in view of Petty. Accordingly, Applicants respectfully request withdrawal of this rejection.

Independent claims 10, 14, and 18 have been amended to include similar teachings to the amended claim 1. By similar reasoning, as above with respect to amended claim 1, the inventions claimed in amended claims 10, 14 and 18 are non-obvious over Hendel in view of Petty. Accordingly, Applicants respectfully request withdrawal of these rejections.

Claims 7-9, 11, 15 and 24-26 were rejected as unpatentable over Hendel in view of Petty. Since these claims depend, directly or indirectly, from independent claims 1, 10, 14 and 18, by similar reasoning, these claims are likewise non-obvious over Hendel in view of Petty. Accordingly, Applicants respectfully request withdrawal of these rejections.

Claims 4 and 21-22 were rejected as unpatentable over Hendel in view of Petty in further view of Cheriton. Applicants can find nothing in Cheriton to overcome the deficiencies of Hendel in view of Petty discussed in detail above. Accordingly, Applicants respectfully request withdrawal of these rejections.

Claims 3, 13, 17 and 20 were rejected as unpatentable over Hendel in view of Pettey in further view of Seidl. Applicants can find nothing in Seidl to overcome the deficiencies of Hendel in view of Pettey, discussed in detail above. Accordingly, Applicants respectfully request withdrawal of these rejections.

Conclusion

Applicants respectfully submit that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicants' attorney (603-668-6560) to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 50-4238.

Respectfully submitted,

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